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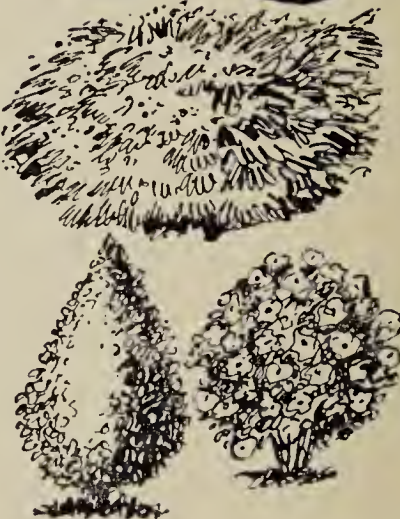
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Golden Irish Yew	Blue Cypress
Andromeda, Large, Budded	Green Cypress
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FLOWERING EVERGREENS

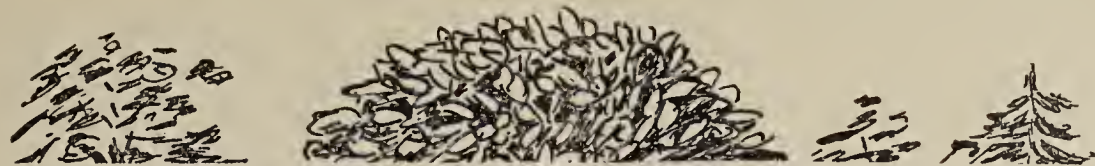
AZALEAS: Hinodigiri, Red Arnoldiana, Red, Large. Ledifolia Alba, White Rosaefflora, Dwarf, double pink	HEATHERS: Red, White, Pink
ABELIA Grandiflora Pink	ANDROMEDA, Lily of the Valley
DAPHNE ODORA, Fragrant	ESCALLONIA Apple Blossom
VIBURNUM DAVIDI	KALMIA, Mountain Laurel
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The Arboretum Bulletin



Camellias

MYRTLE R. THORGRIMSON

THROUGHOUT the ages, nature, like an enchantress, has lured men over land and sea to the far corners of the earth to search out her treasures. As long as plants are grown such names as Fortune, Henry, Douglas, Farrier, Wilson, and hosts of others, will be remembered.

While many plants received their names for the men who risked their lives and fortunes to obtain them, others were named in honor of botanists, travelers, and for missionary priests who were often naturalists as well, and who sent seeds and plants back to their former homes.

To which class George Joseph Kamel or Camellus belonged I do not know. He is described simply as a Moravian Jesuit, who traveled in Asia in the Seventeenth Century. As his memory fades, the camellia genus named for him becomes better known and appreciated and progressively more highly developed as time goes on.

Camellias belong to the Tea family. Two species are well known, *C. Sasanqua* and *C. japonica*. There are also two others, *C. cuspidata* and *C. reticulata*. *C. cuspidata* is described as a free flowering plant, up to six or eight feet in height with single, white flowers, one to one and one-half inches in diameter. It is not particularly desirable as a garden shrub.

The other species, *C. reticulata*, is said to be the most beautiful of all of them. It is described as having a large, semi-double, clear, **rosy-pink flower**. The petals are ruffled and irregular, and are overlaid with a glistening

sheen. It is a tall, lanky grower, with dull green foliage and, sad to relate, not very hardy, especially when young. There is a large specimen in the trial garden of the University of California at Berkeley.

C. Sasanqua, the early flowering type, blooming from October to February, is graceful and desirable. Its hybrids have a smaller leaf and a more open habit of growth than *C. japonica*. The flowers are small, single and double; in color they are white, pink, and red of various shades, and have a rather sweet odor, underlaid with a musty, earthy smell. Many varieties have the undesirable habit of dropping their flowers too quickly after opening. The following are among the best of the named sorts: Fugi-no-mine, White Doves and Mine-no Yuke are excellent whites; Briar Rose, Tanga and Minina are good pinks.

C. japonica is the best known species and its hybrids are what we think of whenever the word camellia is mentioned. The species is native to certain parts of China, Japan and Korea. The first plants were said to have been taken to England in 1729 and numerous later importations, particularly from China, were made.

In one of his books, "Plant Hunting in the Orient," E. H. Wilson tells of the early English trade with China, and the zeal and enthusiasm these early English traders displayed in sending home the wonderful ornamental plants of China. He states: "Not a Company's ship (the East India Co.) at that time (early 1800) sailed for Europe without her decks

being decorated with small portable green houses. Azaleas, peony moutan, wisterias, and camellias, were but a few of such introductions."

In England and in other parts of Europe so much attention was given to the culture of *C. japonica* that by 1850 the number of varieties had become very large. Between 1839 and 1860 hundreds of forms were listed and described. Abbe Berlese's Monograph, published in 1840, lists over seven hundred.

Of course, many found their way to America. The tendency at that early period was toward the very formal, very double, very symmetrical flowers, and the shrubs, themselves, were also very formally pruned. This trend may have had something to do with the decline in the culture of the camellia for, as one writer says, "They went out with the hoop-skirt, wasp waists, and poke bonnets." The fuchsia had likewise suffered such an eclipse. Low temperatures were also a very deciding element, particularly in the northern states.

The delightful informal beauty of the single and semi-double varieties has since been recognized and has resulted in an awakened interest in both *C. japonica* and *C. Sasanqua* hybrids.

The cultural requirements of camellias are such as are required by azaleas and rhododendrons. First, the soil should be well filled with acid humus, such as peat moss, leaf-mold, or compost to which no lime has been added. Some authorities say the soil should be slightly acid, but our experience with both rhododendrons and camellias is that they require much more than a slightly acid condition. How quickly that sickly yellow disappears upon the application of an acid fertilizer.

The second requirement is good drainage.

The third is abundant moisture, both in the soil and in the air, particularly when the plants are young or newly planted.

Fourth, they like a filtered sunshine and an absence of drafts, although old and well established plants can stand full sunshine.

Fifth, they need plenty of plant food. Fertilizers are applied to furnish certain definite chemical materials. The three most important

are nitrogen, phosphorus, and potash. Many other elements are essential in very small quantities. These elements supply certain needs and should be carefully balanced. A good formula has been worked out and consists of:

10 lbs. ammonia sulphate.

35 lbs. acid phosphate.

17 lbs. potash.

28 lbs. cottonseed meal.

10 lbs. aluminum sulphate.

This mixture analyzes 4 per cent ammonia, 6 per cent phosphoric acid, 8 per cent potash and is acid in its reaction. It may be applied by scattering on the ground around the plants at the rate of about one-half pint to a fairly large plant or, better still, mix the fertilizer with leaf-mold or well decayed, neutral or acid, compost at the rate of a six-inch flower pot full to a wheelbarrow load of the humus soil. The amount of this soil applied should be regulated by the condition of the surrounding soil and the size of the plant. It should be lightly raked in. Well rotted cow manure is a well balanced fertilizer and if available can be used.

The time to fertilize is most important. As a rule, two yearly applications should be made. If your plants grow vigorously and are a healthy color (leaves dark green and shining) perhaps only one is necessary. If two applications are made, one should be early in February and the other not later than the last of June. Late applications prolong growth, which will then be too tender to withstand the winter cold.

Camellias are propagated by grafting or by stem cuttings. In grafting, if the scion is placed on a plant several years old with a heavy root system, the camellia grows much faster than if placed on a young plant. These are, of course, more expensive than smaller plants on their own roots. If you are interested in propagation, place half ripe wood three to four inches long in sand or in a sand, mica and peat combination. Do this rather late in the summer when the wood is right and give the cuttings bottom-heat. Keep closely covered until the ends are calloused.

In a couple of years these young rooted

cuttings make fine sturdy plants which transplant readily.

A choice camellia is expensive and difficult to get, so get it balled or in a pot, if possible. If you do purchase a plant with bare roots, cut back some of the growth before planting. The hole and the soil into which the new plant is placed are most important. Make the hole much wider and deeper than the ball and fill it with properly prepared soil. An ideal soil mixture consists of half good garden loam, one-fourth well rotted cow manure, and one-fourth peat or leaf mold. After planting, a mulch of peat or leaf mold at least two inches deep should be put around the newly planted tree. A camellia so planted will need no further fertilizer for another year.

Watering is very essential during the summer as the next season's bloom depends upon this year's care. The flower buds are formed in the preceding summer and autumn. In very dry weather, place the hose near the shrub and let the water run until the ground is saturated. Hose off the leaves occasionally in summer.

As camellias are inclined to be rather stiff and formal in appearance, some thought should be given to proper placing. If they are put in a shrubbery border, soil conditions must be remembered. They may be used against the house, on any side, if the cultural requirements as to shade, drafts, drainage, etc., are observed. If space is available a fine camellia garden can be developed by enclosing it within a hedge and by facing the hedge with shade-loving lilies. An untrimmed hedge of *Sasanqua* or *Sasanqua* seedlings would be inexpensive and a protection to the more expensive *C. japonica* varieties.

The only disease we have encountered is what some authorities call "lime poisoning." The leaves show a mottled appearance, finally turn entirely yellow, and drop. The remedy given by H. H. Hume in his book on "Azaleas and Camellias" is aluminum sulphate, at the rate of four ounces to the square yard and repeated at intervals of two or three weeks. If the condition continues, move the plant to a new location, planting according to instructions already given. We had this dis-

coloration in three different varieties, which we imported, among others, from Japan. We treated them as having what is called chlorosis, a disease caused by growing in soil lacking in certain minerals, notably iron, boron and sulphur. One large plant of Sode-Ku-Kushi, having beautiful white flowers, has been almost entirely cured by sprinkling the leaves with water in which a small quantity of sulphate of iron was dissolved. The solution was also applied to the soil around the plant. The other two were moved to another location, given acid fertilizer, also small quantities of sulphate of iron, boron and sulphate of magnesium. One plant has recovered entirely and is growing vigorously and is covered with buds this spring. The third one did not recover and was discarded.

I have never seen any rating of camellias such as are given peonies. If a Camellia Society were formed, ratings made, and names untangled, a great public service would be rendered. Camellias are hopelessly confused, some old-time ones being sold under three or four different names.

To get the more desirable varieties, it is advisable to buy from a reliable dealer, in the smaller sizes and in bloom if possible. The little camellia plants grow remarkably fast if given proper conditions in a nursery bed, where they may be kept until large enough to place permanently. When well started they grow alarmingly fast and when planted close to the house often block off light or cut off a view.

Var. *grandiflora rosea* will probably rate higher than any other form of *C. japonica*. It has practically everything in its favor, graceful open form of growth, beautiful foliage, a perfect flower (rose pink) that the weather does not injure and which drops when faded. The true *grandiflora alba* is similar in habit of growth and has a white flower of perfect shape.

Lady Clare is very similar to *grandiflora rosea* in its growth form. The flowers are slightly paler, with not quite so many petals and a somewhat flatter appearance which makes it seem a little larger than *grandiflora rosea*. Among the whites is Purity or Neige

d'Ore, a large-flowered full-double variety. The early blooms are formal but as the weather grows warmer, the centers open and curling yellow stamens emerge.

Amabilis is a single white with wide open flowers of good size. Lotus is a beautiful semi-double, pure white, and an extremely large flower with prominent stamens. As one enthusiastic catalog has it "When half open the flower resembles the half-furled wings of a great white swan." Other good whites are *Mathotiana alba*, *alba plena*, *nobilissima*, Imura and Mrs. Thompson.

In passing I might say the whites and pale pinks are injured by the weather to a greater degree than are the darker shades. Those that bloom early in the year, regardless of color, are frequently injured by frost and snow. This year we have used a flexible cellulose glass as a temporary covering over the very early bloomers for protection against winds and frost. This material is tough and admits the light. Four stakes were driven about the plants, the cellulose glass wrapped around them, and tacked down, and a cover of the same material put over the top.

There is a host of splendid reds. Victor Emanuel or the Blood of China is perhaps the most popular due probably to the advertising given it. It is a busy grower, with very large, deep red, peony-like flowers. Goshoguruma is a single red and well liked. Te Deum, Col. Firey, Prof. Chas. S. Sargent, Jarvis Red and *Mathotiana rubra* are among the best. Elena Nobile is a favorite of some. It is a late bloomer. The flower is large and formal and the color of rubies in the sun. It unfurls a cluster of golden stamens as the days grow warmer.

Donkelaarii and *Sweetiana Vera* are two of the best variegated types. *Sweetiana Vera* is described as having a large flower with a soft blending of pale pink with white, of exquisite form and such daintiness as is rarely found.

Among the pinks, one thinks first of Pink Perfection, an old-time favorite of a lovely shade of pink and rather small formal blooms. It sets too many buds, many of which are apt to drop. There are a number of varieties that set too many buds (*Chandleri elegans* being

one.) A camellia plant carrying too many buds for all to develop properly should be disbudded early, just as peonies and roses are when too many buds set. Good light pinks include Debutante, Lady Humes Blush, *Magnoliaeflora*, Rev. John Dayton, Rose of Dawn and Otome.

Paeoniflora is of such outstanding form and color as to be almost a must. It has a large irregular flower with thick creamy petals overlaid with a lovely pink.

Camellias of deeper shades of rose or rose pink are probably more commonly seen than any other color and in this list are found the finest and most all-around satisfactory ones. *Grandiflora rosea* has been mentioned. Marchioness of Exeter is a loose peony type (similar in form to Debutante) and of a lovely deep pink. *Candida elegantissima* has a deep pink, very large, irregular, semi-double flower, with showy yellow stamens. Kumasaka, a very stiff, formal-looking shrub, has dark green foliage. It is a late bloomer, and the large flowers are watermelon pink, beautiful in shape, with lovely yellow stamens showing through among the petals. Daikagura is a very early, deep rose pink and is one that merits protection from the weather. *Chandleri elegans* may be placed among the variegated types. It has a beautiful anemone form, of a lively, pleasing shade of pink. The all-pink form is called Francine. Pink Star is also a very beautiful pink. Of course there are many other fine camellias of various shapes and colors.

Do not be disappointed if your small plants do not produce flowers for two or three years. They cannot always make a vigorous growth and set bloom buds too.

When plants are small be sparing with the pruning shears. As they develop, prune by cutting the flowers but remember the flower buds set on the new growth.

Like the rhododendron, the camellia likes our cool, moist climate and gives great returns for very little effort on our part. Then, too, it adds interest to the garden during the winter and early spring months when most plants are hibernating.

“Coals to Newcastle”

JOHN THOMAS HOWELL

NOT until after I had undertaken to describe for Northwesterners some of the alpine plants of California's Sierra Nevada did I fully realize my dilemma. If I were unaware of the beauty of the northern mountains and their variety of fine plants, I might perpetrate the act in ignorance, but, appreciating a little the richness of the northern flora, I feared that an account commending Sierran alpine to northern phytophilists might truly seem presumptuous, if not even impertinent. For only too well do I remember timberline heather meadows set between Baker and Shuksan, the flower-decked carpet on alpine ridges above Yakima Park, Rainier, the fabulous gardens thriving on scree and cliff on Angeles' summit, and above Vancouver's verdant forest I recall the varicolored floral crown of Arrowsmith. But we must not become too provincial in our botanical tastes and knowledge—so, while I run the risk of being accused provincial myself, I shall “carry coals to Newcastle” by telling of some of our Sierran alpine.

In this attempt to describe a few of the more attractive plants that are found high up in our mountains, it has not been easy to avoid the pitfalls of mountaineer and botanist—for the mountaineer an insignificant alpine will assume through sentiment an entrancing aspect because of the beauty or the sublimity of its surroundings; for the latter, familiarity, instead of “breeding contempt,” often discloses structural beauty that inspires admiration if not outright affection. Blades of grass that venture to the summit of his favorite peak may be tenderly regarded by even a non-botanical mountaineer, while a botanist, who, through a microscope, sees beauty beyond our everyday estimation, is oftentimes enraptured by what is hidden as by what is seen. How often have horticulturists been misled by the glowing account of some plant specially beloved of mountaineer or of botanist! Since I'm somewhat of a mountainer as well as botanist, my enthusiasms are innumerable, but my non-botanical

friends will vouch they are not “worth a fig.” Now, as I tell of some of the Sierran alpine which I admire, I shall try to confine my attention to species generally attractive, but warning has been given should I slip!

Lilies are not generally associated with alpine, but there is a small-flowered leopard lily in the Sierra Nevada, *Lilium nevadense*, which grows from middle elevations almost to timberline. In it the yellowish-orange perianth-segments curve backward from near the base so that in shape the flower is quite like that of the larger-flowered *L. pardalinum* of the California foothills, rather than like the campanulate flower of the montane *L. parvum*, in which the short perianth-segments spread only near the tips. Both *L. nevadense* and *L. parvum* are found in lush mid-altitude meadows where they grow with swamp onions, larkspurs, mallows, parsleys, lupines, Indian paint brushes, and various daisies; but, in a certain strain, *L. nevadense* leaves *L. parvum* behind and climbs to subalpine heights. Here it is little more than a foot tall, the slender stem bears only a flower or two, and the perianth-segments are a rich reddish-orange. This plant has been distinguished as *L. inyoense* and has been reported at elevations up to 10,500 feet. How well I remember this Sierran lily at Garnet Lake on the headwaters of the San Joaquin River southeast of Yosemite, where, beneath the austere glacier-hung front of Banner Peak, it gave an unexpected touch to a subalpine heather garden!

Another attractive liliaceous plant of the California mountains is *Narthecium californicum*. Although it can scarcely be called even subalpine and should not be included in these notes, I must mention it when I recall the attractive patch growing beside a splashing cascade in upper Cliff Creek Canyon in Sequoia National Park at an elevation of 8,000 feet. The plants are generally a foot or two tall with yellow-flowered racemes arising from attractive rush-like foliage. Not only are the flowers pleasing, but the ripening fruits capture a delicate shade of coral rarely met with.

And in wet places where *Narthecium* is found we may also expect *Tofieldia occidentalis* whose tufted, inconspicuous, liliaceous flowers are followed by small ruby-tinted capsules—but here, I'm afraid, we're getting into matters only to be enthused over botanically.

Without doubt the favorite cultivated columbines from Western North America are *Aquilegia coerulea* of the Rocky Mountains and *A. chrysantha* of the Southwestern United States and adjacent Mexico, but, since I have seen neither growing in the wild, I may in my professed ignorance express the doubt if either in its native habitat presents a more pleasing effect than the Sierra Columbine, *A. pubescens*. This columbine, which is restricted to the Sierra Nevada, grows in open, rocky places in the timberline forest or barely above, and there it is a thing of delicate beauty, with its ample foliage overtopped by loose clusters of large flowers. In the timberline forest of *Tsuga Mertensiana* above Tuolumne Meadows in the Yosemite National Park where I saw the columbine last summer, it formed part of a particularly attractive rock garden. The plants grew in a crevice along the side of a *roche moutonnee*, a low granitic "mutton-back" of glacial origin, the fine pale yellow flowers adequately set off by the vertical rocky wall behind them. Alpine Sorrel (*Oxyria digyna*), with rose-tinged panicles of numerous flowers, also shared the crevice, while above, below, and to one side, were shrubby masses of three heathers: below, Labrador Tea (*Ledum glandulosum*) formed a hedge-like base; to one side Brewer's Bryanthus (*Phyllodoce Breweri*), decked with a mass of reddish blossoms not unlike those of the northern *P. empetriformis*, carpeted a gently sloping part of the granitic hummock; and from above, a fringe of *Cassiope Mertensiana* trailed over the edge of the rocky ledge. On a steep scree near by, beds of *Saxifraga Tolmiei* were part of this same garden, while associated with the saxifrage was *Eriogonum Lobbii* with its long-stalked, flat-lying pussypaws, ochroleucous now, but in fruit to become beautifully rose-tinged.

Although it would seem as if nature had exerted special care in this garden that the

surroundings of the Sierra Columbine should be adequate, such is not always the habitat of the plant. Not infrequently it grows on open, gravelly slopes, and I have seen it luxuriating among the tumbled boulders of a raw talus. Also the color is variable: although it is generally a pleasing light yellow, it may be variously shaded with red, especially if it is associated with the red-and-yellow-flowered *A. formosa* var. *pauciflora*, and, from other parts of the Sierra I have seen forms with ivory-white or bluish-lavender flowers. Always *A. pubescens* is one of the fine plants of the Sierra Nevada.

Very different from the open graceful inflorescences of the Sierra Columbine are the low rigid stems of the California Jamesia (*Jamesia americana* var. *californica*), a depressed shrub which hugs close to rocky walls or creeps along the crevices. The flowers, which in appearance somewhat resemble small compact clusters of currant blossoms, are a lovely bright pink, and are set off to advantage by the rather sparse but attractive pale green leaves.

The California Jamesia is one of the plants which has apparently reached the Sierra Nevada from the Rocky Mountains by way of ranges and mountainous highlands along the southern border of the Great Basin. The species, which is white-flowered, grows in the Rocky Mountains and as far west as Southeastern Arizona, while the pink-flowered variety grows in the Charleston Mountains in Southern Nevada, and in the Panamint Range and Sierra Nevada in California.

Var. *californica* is described in our floras as attaining a height of about three feet, but I have never seen it extending more than a few inches above its rocky substratum. Among the high peaks of both the Kings Canyon and Sequoia National parks in the Southern Sierra Nevada where I have seen the California Jamesia, it has always occurred as a subprostrate but rigid shrub, adorning the harsh rocks of its chosen home with fringes of exquisite beauty.

My first meeting with the Sierra Primrose (*Primula suffrutescens*) was on the side of Mt. Whitney, July 23, 1920, and in my brief

record of the day's ascent it is the only plant I mention. For a high school sophomore, Mt. Whitney was a memorable occasion; for a young, would-be mountaineering naturalist, the Sierra Primrose was *fleur d'jour*. It is still a delight when on rather rare, choice occasions I have come across it with its loosely branched but densely leafy base and its ample clusters of bright rosy primroses. I remember finding it with especially deep carmine flowers on the divide south of the Caribou Lakes in the Klamath Mountains of Northwestern California, the only district where the plant grows beyond the Sierra Nevada. Also I remember it where it grew with *Cassiope Mertensiana* on the rocky talus south of Castle Peak's Frog Lake near Tahoe; and especially memorable was that superbly floriferous plant set between granite boulders at Columbine Lake below Sawtooth Peak in the high southern Sierra Nevada. Yes, the Sierra Primrose is a memorable plant: and it is of more than usual botanical interest, too. No other primrose related to it grows in the United States, its only North American relative being found in Alaska and adjacent islands, while most of its relatives are found in eastern Asia. If this choice California alpine could speak, what tales it might tell of age-old plant migrations, to say nothing of those geologic and climatic changes that have stranded it so far from its kith and kin.

During the past summer while botanizing in the high Yosemite country centering in the Tuolumne Meadows, I climbed Mt. Conness, a 12,000 foot granitic peak on the crest of the Sierra, and there I saw a number of the Sierran alpine. At about 11,000 feet, where shrubby Whitebark pines (*Pinus albicaulis*) give way to treeless slopes above, a sandy scree was covered by plants of the Rose Epilobium (*Epilobium obcordatum*), whose pale green foliage set off to advantage the numerous inch-wide saucers of rosy-mauve. More could be wished for in the color of the corolla, but a flowery strip of the plant fringing a granitic boulder is fetching enough. Here, too, at 11,000 feet, was one of the potentilla-derived ivesias which form a considerable group through our Western mountains. This one was

the rather rare *Potentilla (Ivesia) Muirii*, with its small, indifferent, yellowish flowers, but with those mousetail-like leaves that reach an evolutionary climax in the silvery leaves of *Potentilla (Ivesia) satolinoides* of less alpine slopes.

Five hundred feet higher I came to a broad, shallow, cirque-like hollow, down the middle of which flowed an icy stream derived from melting snow not far above. Although the snow had only shortly before retreated from the meadowy stream-border, a number of plants were already in full bloom, several being among my favorite Sierran alpine. Two of these were members of the Purslane family, one a *Lewisia*, the other a *Claytonia*. The former, regarded a Sierra endemic by Rydberg, who named it *Oreobroma glandulosum* (*Lewisia pygmaea* subsp. *glandulosa* Ferris), formed flatly depressed clean-cut rosettes with numerous white flowers peering from among the radially arranged strap-shaped leaves. The *Claytonia*, *C. nevadensis*, another California endemic, spreads by widely creeping rhizomes through the water-soaked gravel, sending up here and there small tufts of fleshy, red-tinged leaves and small loose clusters of bright rosy flowers. Along with these two portulacaceous plants were numerous plants of a brightly yellow-flowered *Draba*, *D. Lemmonii*, attractive enough when seen in its sky-high abode, but the flowers are fugacious and scarcely different from a score of other alpine mustards.

On drier slopes not far above this garden were plants of such widely distributed species as the Alpine Sorrel (*Oxyria digyna*) and the Western Rose-root (*Rhodiola integrifolia*). Suede-leaved mats with rosy flower-heads were *Eriogonum ovalifolium* var. *nivale*, while low, silvery-leaved lupines (*Lupinus danaus*) with pale lavender flowers were common enough, and so, also were the queer inornate cream and brown heads of the Dwarf Paintbrush (*Castilleja nana*). These plants, together with the ubiquitous alpine sedges and grasses formed the botanical setting for another of the superior Sierran alpine, *Pentstemon Davidsonii*, which, by the way, was first made known to science from plants col-

lected on Mt. Conness. This plant, which intergrades with the more northern *P. Menziesii* of which it is generally regarded a variety, is characterized by large, pale violet flowers borne on a depressed, densely leafy base. Sometimes the leafy part of the plant is much smaller than even one of the handsome corollas, but frequently the plants become somewhat extended forming pad-like mats a foot across that bear a spectacular display of flowers. Whether small and few-flowered or more expansive and abundantly floriferous, *P. Davidsonii* is a favorite Sierran alpine; and on Mt. Conness it grew not far distant from two other favorites, *Hulsea algida* and *Polemonium eximium*.

Among all the plants which grow above timberline in the Sierra Nevada, the showy robust *Polemonium eximium* is perhaps a first favorite of all mountaineers. Its numerous attractive flowers of a good, deep, lavender-blue are crowded together into rounded heads a couple of inches across and these are raised on short stalks above tufted leaves that are finely dissected and glandular-fragrant. This fine plant which characteristically inhabits only the highest eminences at elevations of 12,000 to 14,000 feet is restricted to the Sierra Nevada, but it resembles closely alpine polemoniums of similar habit in desert ranges just to the east of the Sierra Nevada (*i.e.*, *P. chartaceum*) and in the Rocky Mountains (*i.e.*, *P. confertum*). Frequently growing with the Sierra Polemonium, as on Mt. Conness, is a luxuriant alpine daisy of the sneezeweed alliance, *Hulsea algida*, and, with its golden-yellow radiate heads borne on stems up to a foot tall, it furnishes superb contrast in form and color to its blue-flowered companion. Other alpine plants may venture as high as the Polemonium and *Hulsea*, but of all the Polemonium is generally favored. Of course, the Polemonium is chiefly loved for its spectacular beauty, which inevitably calls forth audible ejaculations of delight whenever discovered, but, growing as it does, so bravely on its bleak, rocky summit, it is also beloved as a floral symbol of good things achieved amid adversity: it is the *Edelweiss* of the California mountaineer.

Eight

Old Mistakes

MR. W. J. BEAN tells us that *Skimmia Fortunei* was sent to England by Robert Fortune in 1849. It was exhibited by the Horticultural Society in 1852. Unfortunately the name was lost and it was called *Skimmia japonica* for thirty-seven years.

The true *Skimmia japonica* was grown at Kew Gardens in 1838. It had never received any special notice and when Robert Fortune sent it home again in 1861 *Skimmia Fortunei* was still erroneously known as *S. japonica* and the true *S. japonica* had been given the name *S. oblata*. In 1889 Dr. Masters reduced the plants to their true names.

This confusion of names existed in a greater or lesser degree when plants of the two species were sent to the Pacific Northwest and became established here at least some twenty years ago.

Gardeners are a determined group; they are as averse to changing names as some people are to changing horses in the proverbial mid-stream, especially if they suspect that botanists are pulling the strings!

Skimmia Fortunei is a decorative shrub for foreground plantings and winter effects. It is not more than two feet high and pleasantly open. The leaves are smooth and dark green, tapering at both ends. It is free-flowering, self-fertilizing, and produces an abundance of bright red fruit. It is possible to see a plant still blooming, with some green fruit, and still retaining some of the old scarlet berries. It is throughout the winter, however, that we value it most; it is then gay across the length of the garden. Propagation from either seeds or cuttings is not difficult.

Skimmia japonica is of less interest as to foliage. It grows to three or four feet and, I think, might make a handsome low hedge. This plant is not self-fertilizing and requires about one staminate plant to every six pistillate plants. Even so, a larger crop of berries follows if they are artificially fertilized. The fruit is exceedingly beautiful—large and waxed and bright crimson.

There are various named staminate forms of which *S. macrophylla* is the finest.

ELSE M. FRYE.

The Arboretum and the Post-War Garden*

HERBERT G. IHRIG

A SHORT time ago I heard Rupert Hughes use an illustration that I would like to borrow for my subject today. He spoke of the glory of the moonlight on the water and how it threw a path of beauty direct to everyone, regardless of where he might be. If you view this beauty from your own garden your trees will be silhouetted against it and form the frame of a picture that will be exclusively yours. Yet at the same time to the individual five miles or five hundred miles away a similar path would lead directly to his garden. His trees would be silhouetted against it. It would be exclusively his picture. It makes no difference whether there are two or two million people looking at this path, each has a different picture. To each it is a personal thing.

Yet each reacts differently. To the lovers it has one meaning, to the pessimist it is only the reflection of a burnt out planet, to the average person it is an expression of universal beauty.

The Arboretum, it seems to me, has the same universal appeal. Its paths are many and diverse and lead into every garden of the Pacific Northwest and far beyond. My path may be bordered with rhododendrons, yours with azaleas, or lilacs, or camellias or other beautiful shrubs or trees. To each of us it is a personal picture, yet may be shared by all without depriving any of us of our enjoyment.

As individuals react differently to the beauty of the moonlight each reacts differently to the Arboretum. To the scientist and educator it is a living museum, a place of study; to the commercial grower it is a testing ground for new plant material; to the civic minded it is a glorious park and to the gardener it is a source of inspiration. One might say that horticulturally it is everything to everybody.

I wish I had time to explore with you several of these many paths but since I cannot I shall try to follow the one which leads into our post-war gardens. I dislike the ex-

pression "post-war" for practically every organization from the crossroads literary society to learned international commissions are all doing some kind of post-war planning and while much good will come out of their studies many of their suggestions are at best "wishful thinking." Perhaps my own comments may be so considered. I would rather class them in some respects as "regretful thinking." At least I shall try to stick to fundamental trends which have had their origin in a factual background and are already in evidence and will no doubt be greatly extended after the war.

It may be of some help if we try to picture in our own minds what the typical English garden looked like prior to World War I. I don't know if there was such a thing as a typical English garden and frankly I never saw one, but certain mental impressions stand out clearly in my mind. These have been gained from English novels, pictures and garden magazines. I think of the English garden in terms of broad expanses of lawn, deep, glorious, herbaceous borders, lovely bedding plants, foundation plantings of fine trees and shrubs and in the distance a bit of woodland.

Some years after World War I, when I visited England, I found that while these things might not be called typical they were definite and evident characteristics. Yet I was told that gardens in England had undergone a transformation and were being further changed. Inquiry brought additional information. During the war many acres of lovely lawn had been plowed up to grow vegetables. There was a shortage of labor, maintenance costs were higher, and taxes were absorbing much income which was previously available for gardening. The great need of many gardeners was a lower maintenance cost. As a result they turned to trees and shrubs. Borders became smaller, bedding plants less in evidence, lawns less expansive. Yes, the picture had changed. While these observations and impressions were solely my own, gained from limited contacts and should not be con-

* This paper, read by Mr. Ihrig before the Seattle Garden Club, is being printed by popular request.

strued as general, to me it seemed that the garden of lawn and flowers was to a large degree giving way to one of trees and shrubs, together with a distinct trend towards the naturalization of bulbs and flowers.

All this cannot be attributed to the war alone for Britishers have long had a growing appreciation of flowering trees and shrubs. There were great numbers of new hybrids coming into commerce at this time and of far greater importance was the great influx of new plant material from Asia, particularly rhododendrons. Johnson says in his "Woodland Garden" that the latter brought about the greatest revolution in the history of gardening.

None of this is new to America or to the Pacific Northwest but the advances we have made are nowhere near as marked as in England, primarily because we are still unacquainted with many of these finer new shrubs.

Let us look now to our own gardens. Here the pattern seems to be fairly well set. I am sure I don't have to impress you with what a labor shortage means. Many of you, however, may feel that this is a temporary condition. I wish I could share this view but I cannot for several very good reasons. Many gardeners will not return from war. Many others have, under the pressure of war work, gone into more skilled trades and are accustomed to much higher wages. Returned soldiers are not going to be turned loose without employment. Schools are turning out fewer gardeners and social security will practically eliminate the older men, for under the Social Security Act they cannot draw their allotment if they earn \$15 a month or more in any gainful occupation. It is hard to believe that these older people will sacrifice their fixed income to do temporary work. It is my opinion that the days are past when you can hire a good part-time gardener at \$3.50 or \$4.00 a day.

Then there is the matter of taxes. Any of you who worked on last year's tax reports or who have had to live with husbands who did, will fully realize that this item will drain off much surplus formerly available for gardening.

Add up all of these items and the only answer for the post-war garden seems to be one of low maintenance cost.

Here the influence of the tree and shrub garden will become increasingly important and here also the Arboretum will play a stellar role. In this group of plants from which you will be making your selections are many newcomers. What to buy? How does it grow? How large? When will it flower? Color, leaf pattern, location and many other questions will present themselves and they will not be easy to answer or to evaluate. Not only because of their newness but because I believe we will change our concept of garden design. Most of us have looked upon a garden as a sort of watercolor—one which we repainted every year. This year a tone study in pink and blue; next year one of purple and gold. We counted much on massed color for effect and if one was not to our liking it could easily be changed to another the coming year. But not so the shrub garden. Here changes are more costly and they delay the ultimate effect. I think of the new garden more as a mosaic. Design? Yes. Mass effect? Yes. Color? Yes. But the individual plant assumes greater importance. Each must be a gem of itself. No inexpensive seed packet to fill in the spaces but plants chosen for color harmony, line, leaf texture, flowering time and all the other factors which go into a well designed garden picture.

Such a mosaic increases in beauty each year, costs less to maintain and expresses greater artistry. It also permits the development of the second important trend in post-war gardens—the naturalization of bulbs and flowers. I shall not dwell upon this phase but anyone who has seen the naturalization of flowers in Beacon Hill Park at Victoria, B. C., will readily appreciate the exquisite beauty of such a planting. I might also mention as an illustration the use of the golden crocus naturalized under deciduous azaleas and the lovely asiatic primroses which flower and reseed themselves along streams or along the rim of a pool.

Many of you will be thinking that already there are more beautiful trees and shrubs than

you can possibly use and certainly there are many lovely old favorites which can never be replaced but if you will look up an old catalogue of a few years ago and see how many things were missing which we now sometimes call "commonplace," or read a list of Mr. Ernest Wilson's introductions you will realize that new conditions, new plant associations are constantly changing the materials and design of our gardens. Few people realize that the beautiful Kurume azaleas which we so often admire were first introduced into the United States at the San Francisco Exposition but were somehow lost to commerce and had to be reintroduced by Mr. Wilson. Or that the beauty bush and the regal lily are but a few of the many comparatively newcomers. Yes, the garden will continue to change and this new mosaic will vary with taste, location and materials used. In the Pacific Northwest this change might almost be called an adventure, for nowhere in America can so many of these lovely new asiatics and hybrids be grown so well and flower so profusely. We are following a trail which leads to a world of new beauty.

In this picture rhododendrons will hold an important place because of their beauty, their seven months' flowering period and the great variety of types.

Here a few words of caution. Don't let the expert bewilder you when he states that there are between seven and eight hundred different species suitable for garden use to say nothing of the many fine hybrids. You can ignore the great majority of these and still live happily. On the other hand do not close your eyes to the beauty of some of the finer species. Next don't let an enthusiast, like myself, burden you with a lot of "musts." You can't possibly have them all unless you want to be a collector and then, if my experience is characteristic, you will lose much of your garden beauty. A proper selection calls for a great deal of willpower and a *high* degree of selective ability.

It has been said that rhododendrons range from grandeur to fairy-like beauty. Some have huge trusses larger than one's head and

others could well be used for corsages in a doll house.

But let us first consider the seven months' flowering period. It depends of course upon your selection, your location and in occasional years upon the weather. There are those who prefer the dominance of rhododendrons and azaleas in April and May, but these people, in my opinion, miss much in garden beauty for it is a delightful thing to be greeted by a lovely display of bloom in early January and sometimes even at Christmas.

Like the greeting and happy smile of an old friend, who has been away for a long time, it sort of does something to you.

Now as to grandeur. All of us are familiar with such plants as Loderi var. King George, one of the finest hybrids ever produced; Cornubia, a large red, which flowers in February; Faggetter's Favourite and many others too numerous to mention. The softer lace-like types however are less well known. Eliminating for the moment the very small plants I would like to suggest that you get acquainted with some of the finer members of the Triflorum series. *R. yunnanense* is one of my favorites and has a delicate fairy-like loveliness which is unsurpassed. It is an informal plant and belongs in a shrubbery, at the edge of a woodland or in some such naturalistic planting. It grows to about ten feet in height and flowers from the ground to the topmost branch. At its best it looks like a shower of diminutive orchids. Its uses are manifold. Another of this series is *R. Augustinii*, a very lovely blue rhododendron.

I would like to tempt you further with a list of many of the choice things including beautiful rock garden plants like *R. Williamianum* with its heart shaped leaves which are a lovely bronzy color when young or *R. moupinense* that shook off a mantle of snow last year and spread out its rich glossy foliage starred with beautiful white blossoms in February. The difficulty is that I wouldn't know when to stop and I might add to the confusion that this group of notes may have already created. But these things are part of that post-war trend. They are gems which will fit into that new mosaic.

A Puget Sound Winter Garden

MARY BROWN STEWART

OFTEN in midwinter, we see interesting notes in the daily press listing untimely bloom that has appeared in various gardens. These isolated out-of-season blooms have little significance horticulturally, but the interest they arouse may indicate a desire for year-round garden bloom that can be realized in this section as in no other in this latitude.

The thrill that greets each "first" as it appears is intensified in midwinter when each gleam of color, as it emerges, gives promise of the new year's bloom just ahead. And how few of the summer gardeners realize the possibility of having blooms that will show in groups, drifts and actual sheets of color, appearing almost overnight any time from early January on, from naturalized, bulbous things, to supplement the meager (and later) shrub and flowering tree display.

After Christmas one begins to watch for the first new bloom of the year. Will it be snow-drop or winter aconite? Sometimes it is one, sometimes the other; but always it lies between these two, with never a long interval between. And so, if the days are mild, these white and yellow "firsts" spread by the hour into clumps and patches, some of which can be traced to a single bloom that first appeared where a seed was dropped years ago.

If it happens that this first flowering has been hastened by a "false spring" and winter again lays hold, they will stand through it, shrinking within themselves a little, but enduring until a merciful thaw releases them, and then go on to finish their routine of flower and seed.

Almost at once after these, the first crocus bloom will appear and will be in shades of mauve, blue, and purple, and may be known with certainty as *C. Tommasinianus* because of its early appearance. If allowed to naturalize *Crocus Tommasinianus* will in time be found here, there, and everywhere, singly or in lovely clumps, and especially happy in plantings among deciduous shrubs and in the rock garden. A real planting, once established,

will always remain (barring the efforts of a bull dozer) and why not? For their bloom springs up in clouds of blue when there is no competition and their seed is ripened and leafage turns sear and brittle while the year is still young. Thereafter they are seen no more until the next blooming time.

As the days lengthen into February, tiny buds of bright blue within a pointed, tough, little sheath of deep green appear in the rock garden and scattered among other beds and plantings of small things, (sometimes one wonders how the seeds get into such surprising places). These are the first hyacinths, tiny *H. azureus* of a brighter, fresher, blue than any Dutch variety, and bent upon holding their own wherever they get a foothold.

Crocus susianus now appears, its buds striped with glossy, bronzy, brown looking like brushed-on strokes of lacquer, but opening to the sun as stars of the deepest, brightest, yellow yet seen. Its leaves are shorter and deeper green than those of most crocuses and so it is a bit "neater" in effect. And before these disappear *Iris reticulata* will show its first blooms, a new color note of royal blue with an orange beard and extremely effective in contrast with the true English primrose. Also, speaking of winter irises, the species *I. stylosa* will bloom about this time.

These bulbous things are not the only winter possibilities in their classes, and search for others could be a most interesting part-time hobby. Although perhaps revealing cultural problems not found in this list, all of them are happy in sun or partial shade and increase generously if given a suitable mulch occasionally (peat or leaf mold) and a little bone meal. All prefer the light, well-drained, upland soil common to many gardens of this section.

If these things can be given a proper setting, what a beautiful winter garden can be created. Exciting combinations of trees, shrubs and perennials can be used. Here is such a one: *Prunus pissardii*, with *Daphne*

Mezereum placed here and there, a few Christmas roses (*Helleborus niger* for white, the pink hybrids, and *H. orientalis*, all of them beautiful with the deep rose of *Daphne Mezereum*), clumps of *Crocus Tommasinianus*, so placed that they will spread from self-sown seedlings into and between the trees and shrubs, and blooming while these latter types show their beauty of swelling buds, then a little in front place several groups of winter aconite, not too near the path and with room for the spread of seedlings.

Add the accent of groups of snowdrop and *Crocus susianus* at points that will be suggested by the contours of paths and background.

All through this planting may be volunteer plants of "violet cress" (*Ionopsidion acaulis*), almost carpeting the ground, and of course having their origin in some start made by hand. They spring up with the first cool fall rains and soon start their season of bloom, (the tiny plants almost covered with the pale violet, four-petaled, flowerlets) continuing until really warm days remind them to "go to seed."

A corm here and there of hardy cyclamen will add interest, where so much vertical bulb leafage is present, by the handsome rug-like effect of its mottled, green leaves. And if *C. coum* is available there will be tiny, jewel-like, pointed buds of rosy flame through most of the winter.

The garden as sketched may continue right on through the spring with equally enjoyable bloom from some of the delicate spring flowering bulbs of conservative habit. Annuals, that will not grow "smothering" leafage, can provide bloom above the dormant winter things throughout summer also. The suggestions can be carried out on a small scale in a sheltered spot easy to see from living room or dining room windows—always so placed that the scant winter sunshine finds the spot.

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More About Helleborus

INGEBORG NEVILL

Helleborus Orientalis, the Lenten Rose

WHAT a drab and dull month January would be to garden lovers if we did not have the hellebores to cheer us and to make us believe that spring is already here. The sight of the beautiful, dark, crisp and shiny foliage surrounding the tight bunches of fat, early, flower buds is like a tonic.

We are now speaking of the *H. orientalis*, which is our favorite. There is such a variety in its shades of color, a variety that runs from deep purple, maroon, through rose and lavender to greenish white. A slightly grayed tone gives it an exquisitely soft and artistic appearance that is hard to describe. Like *Helleborus niger*, the Lenten rose has five petals; but unlike the latter, it is much branched and the blossoms hang, probably as a protection for the lovely center rosette of ivory-colored anthers that add so much to the beauty of the flowers.

The texture of the petals is heavy and satiny, giving the flowers a very lasting quality. The buds make their appearance in early December, and in January they are well on their way and beginning to show color. They are tantalizingly slow to open which makes for a longer period of bloom.

The flowers measure up to three inches across and have a wonderful variety of color patterns made by the speckles and tracings of mauve and chocolate. They do not drop the petals which very gradually turn to a metallic rose and green. In the center five little pods form, the seeds from which will germinate the following winter and, if left until early fall, will be ready to plant out and should bloom in two to three years.

The plants are best grown in sifted shade in any good garden soil. They do not require much water as the summer is their time of rest. If grown in full sun, there is always the danger of sun scald, which makes an unsightly plant. They should be left undivided and will in a few years make a fine plant about fifteen inches high and up to three feet in diameter. If there is enough space

available to naturalize them or plant them in drifts, they make a charming and interesting sight. They also make a good foreground planting for evergreens for they are never unsightly. They will also do well in full shade. Old and injured foliage should be cut off. In October, they should be given a dressing of any good natural fertilizer like well rotted cow or sheep manure, blood and bone, or anything similar, which is slow-acting.

The plants are not hard to handle. Their heavy systems of fibrous roots hold the soil well in the transplanting operation which can be done at any time of the year.

H. orientalis is a very welcome flower for table decoration. It is most effective when floated in a low bowl or container so that its beautiful center is shown to the best advantage. Also, by cutting it this way so many buds are saved. A few trusses of *Helleborus foetidus* combine with it beautifully. Also, if it is cut with a long stem, particularly soft and pleasing effects can be had by using sprigs of the woolly *Stachys lanata*. When cut in such a way, the stems should be slit about an inch or so to facilitate the absorption of water. If the flowers begin to droop, they will freshen up again by being left in a cool, dark place or in a frigid air for a couple of hours. Treated this way they should keep fresh for a week or more. In the garden, they are so lasting it is almost a pity to cut them.

Helleborus orientalis is beautifully adapted to corsage making when combined with a truss or two of *Helleborus foetidus*, and with contrasting or harmonizing colors of ribbon, it is startlingly beautiful. Here again its lasting quality is an advantage.

What more can be asked of any plant? Does it look like we have been eulogizing? Try them for yourself and see.

Helleborus foetidus

Helleborus foetidus is entirely different from its relatives, *H. niger* and *H. orientalis*. One would hardly believe it belonged to the same family. Only in the formation of the

seed pods and in the heavy texture of foliage and flower does one see the resemblance. The foliage is dark green and very palmate. It reminds one of the leaves of the umbrella plant. The buds begin to appear early in December, shooting up from the center of the stalk, gradually unfolding and branching out into a large loose panicle of chartreuse bells edged faintly with red. Individually, the bells resemble the fritillaria. Eventually each bell opens into a flat, five-petaled flower about an inch across. The panicle spreads out until it often measures a foot and a half. The seed pods appear somewhat later but the transition is so gradual that it covers several months. About the latter part of May the top should be cut down to the ground. At this time there should be several sprouts springing up from the crown (usually from five to seven of them), which develop into next year's flower stalks and will make a very large plant. The root system is very small compared to the above-ground parts, making it unsafe to move any but the young plants. It seeds readily and will bloom in two to three years from the time of seeding. It will take any good garden soil, sun or shade. As a cut flower, it will last for many weeks, but needs another flower combined with it. It is a lovely flower together with *H. orientalis* or *H. niger*. One complements the other. If used in corsage work after the seed pods appear, they should be removed or it makes them too heavy. The plants cannot be divided.

Helleborus cyclophyllus

Helleborus cyclophyllus is in every way like *H. foetidus* except that it is a little larger and heavier, and the red rim a bit more distinct. Of the two, the latter is to be preferred.

Helleborus corsicus

This hellebore is not quite so familiar to us. We purchased some plants. Unfortunately only one survived and sulked along until last year when it decided to reward us with a sickly looking flower truss. This year, however, it is taking more interest in life. The truss is a little larger and looks healthy. We are hoping for a few seeds.

The flowers resemble those of *H. foetidus*,

but are more fluffy and delicate, and without the red rim. So far there is only a single truss and it does not look as though it will develop into the generous panicle that *Helleborus foetidus* offers us.

The foliage is beautifully shiny and sharply sawtoothed, and is shaped into three leaves like the foliage of the poison ivy. The plant we have is much smaller than *H. foetidus*. It blooms earlier and is already (February) sending up the sprouts for next year. We think a mass of them would be lovely. This is all the information we can give on *Helleborus corsicus*.

Funk & Wagnall's dictionary speaks of European White Hellebore, *Veratrum album*, and also shows an illustration of it. It looks quite different from the ones we know. We would be very glad to get some information about it. Johnson's dictionary says, "There are great doubts whether any of the species be the true hellebores of the ancients."

The winter aconite, the dear little here-I-am-flower that suddenly pops up its cheerful little yellow face framed in the fresh green collar, also belongs to the family. The five seed pods tell the story.

With this wealth of lovely and fascinatingly different flower material why should any Western Washington garden look dead and uninteresting during the winter months?

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Daphne Cneorum

FRANCES KINNE ROBERSON

SEVERAL years ago the American Rock Garden Society asked each of the twelve units of which it is composed to select a list of fifty of the best rock plants for their respective sections of the country. On every list *Daphne Cneorum* appeared and on many it was the first choice. Such a recommendation alone should warrant the use of this low growing evergreen shrub in any rock garden whether the plant is called by its botanical name or by such descriptive terms as Old English Garland Flower, Rock Daphne or Rose Daphne.

Historically *Daphne Cneorum* is very old and the origin of the species name *Cneorum* seems lost in this very antiquity. However, it is of Greek derivation and the "c" is silent. References in literature usually employ one of the common names mentioned in the previous paragraph.

Geographically *Daphne Cneorum* is indigenous to the mountains of Central and South-eastern Europe but it has attained popularity as a commercial item wherever plants are grown for sale.

The same family to which it belongs, *Thymelaeaceae*, contains forty genera but very few beside daphne are familiar to us; and, of the four hundred fifty known species of daphne, only forty or fifty are given, even in Standardized Plant Names, and this number includes varieties. The other species besides *D. Cneorum* which are most frequently used in gardens are *D. odora* and *D. Mezereum*. The latter produces beautiful but poisonous red berries in late summer. Some additional species courted by alpine growers, sometimes with slow or even unsuccessful response, are *D. petraea*, *D. arbuscula*, *D. Blagayana*, *D. retusa*, and *D. collina* or *sericea*, in ascending order of mature height.

Daphne Cneorum occurs in several forms. The type has trailing branches with crowded dark green leaves and very fragrant rose-pink flowers. When listed as *D. C. major* the plant is more robust than the type and when listed as *D. C. minor* it is smaller in all parts; "varie-

gata" indicates a leaf edged with yellow but with flowers identical with the type; "alba" denotes a white flower and in our experience this form is very lax as is "Leila Haines" which bears clear pink flowers; *D. C. eximia*, because it is large in all parts, rates higher than any other form with one famous English grower and writer; and *D. C. Verloti* is highly praised by other connoisseurs. Plants evidence great variation in sturdiness, floriferousness, compactness, and size of flower when procured from several sources, and the wise gardener will discard all the poor types in favor of one or two superior varieties.

These may be propagated by softwood cuttings in summer or hardwood cuttings in fall and winter. Plants forced in the greenhouse in the spring supply good cutting stock also. A rooting experiment carried on in our own greenhouse a few years ago indicated that, of six rooting media used, the three best were mica, sand, and sand mixed with mica, in that order. The roots were of good quality and length in all three but the number of cuttings rooted in mica was 10 per cent higher.

Strong bottom heat is essential until a callosus is formed; then the temperature may be lowered until rooting is complete. Usually two years elapse before free growth can be expected.

Many gardeners layer *Daphne Cneorum* and such practice is highly recommended whether or not the rooted branches are to be removed, because the additional food thus supplied builds a bushier plant with less tendency to barrenness in the center. Layering may be accomplished easily by fastening branches down firmly with a large wire staple, or even a hairpin, in a peaty soil which will remain fairly moist. Another method of keeping branches in place during this period is by means of a heavy rock laid over the node from which roots will emerge. In the latter case a small amount of soil is first packed down on the branch. If the layered plants are to be removed at the end of a year, they should then be planted in pots no larger than neces-

sary and kept shaded to conserve moisture in the foliage.

Our personal experience does not include any dealings with *Daphne Cneorum* seed but, supposedly, it may be sown at maturity or may be stratified. Germination is very slow.

Experts disagree among themselves on soil requirements but our own experience has been that full sun, lime-free soil made up of peat and compost and offering good drainage, and an occasional dressing of well rotted manure, will produce healthy, full-flowering plants. Leaf mold or wood soil might replace some of the peat moss.

My praise of *Daphne Cneorum* is never ending. No other plant of similar habit has so many fine attributes: long blossoming season; delightful fragrance; clear pink flowers of waxy texture in heavy trusses; and, reasonably fast growth without any tendency to ramp all over everything. It may provoke despair when it is unhappy but once it is satisfied with cultural conditions, *Daphne Cneorum* will win a place of merit with any plant lover.

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Seattle to Have Camellia Show

ON SATURDAY, April 14, and Sunday, April 15, Seattle will hold its first Camellia show at the University of Washington Arboretum greenhouse, in conjunction with the dedication of the newly established Mary E. Williams Camellia Memorial Garden.

The show will open to the public at 1:00 p. m. and remain open until 7:00 p. m. Hours on Sunday will be from 10:00 a. m. to 7:00 p. m. The dedication of the Memorial Garden will be held Sunday, April 15 at 3:00 p. m. You are cordially invited to attend the show, the dedication and a tour of the Arboretum to areas that hold particular interest during the middle of April.

The camellia family at the Arboretum is sponsored by Amateur Gardeners, a departmental study club. For about five years this club has gathered choice camellia cuttings and plants until now the camellia collection consists of more than seven hundred plants including more than two hundred varieties. In order to secure an outstanding collection, plants were chosen from nurseries in Japan, our southern states, particularly Alabama and Louisiana, and our own Pacific Coast states. Many of the members of Amateur Gardeners helped propagate these plants during the difficult years at the Arboretum and one of the most ardent workers was Mary E. Williams, whose interest will be perpetuated in the Memorial Garden.

At a recent meeting of this club it was voted that an annual planting of camellias be made and with this long range planning, and because of the ideal growing conditions for camellias here in our Northwest, we can look ahead to one of the most outstanding collections in the United States. The committee has on its agenda the purchasing of species other than *japonica*, *Sasanqua*, *sinensis* and *cuspidata* now represented in the collection, even though the new plants may be tender and will remain in the greenhouse. *C. reticulata* and *C. saluenensis* will be among those species added to our camellia group.

Mr. Otto Holmdahl, the landscape architect, planned the Memorial Garden which is adjacent to Rhododendron Glen. Interesting

groups of camellias are planted in association with companion plantings of *Stewartia* species, *Oxydendron arboreum*, *Pittosporum Tobira*, *Franklinia*, *Mahonia Aquifolium*, Japanese quince, *Azalea Schlippenbachii* and Rhododendron species. The towering maples, dogwoods, cascara, *Magnolia Kobus*, *M. grandiflora* and *M. conspicua*, as well as groups of fir, cedar, hemlock and spruce provide the necessary shade and background material.

In order to enjoy the Arboretum in its early spring color, a series of tours to the Camellia Garden, Rhododendron Glen, Woodland Garden and Azalea Way will be conducted during the show days by guides headed by Dr. John Hanley, director of the Arboretum, on Sunday, (11:00 a. m. and 2:00 and 4:00 p. m.), and by Mr. Paul Brown, his assistant, on Saturday, (2:00 and 4:00 p. m.). Wear heavy shoes. Take No. 4 car "Montlake" and get off at E. Lynn. Walk four blocks through the Arboretum to greenhouse.

Schedule for the Camellia Show follows:

Exhibits

1. Camellia specimen blooms: (all types. Singles, doubles, etc.)
 - (a) One camellia bloom.
 - (b) Group of three camellia blooms, one variety.
2. Camellia plants in pots. (Pots need not be covered.)
3. Arrangements:
 - (a) Luncheon table using camellias.
 - (b) Mantel arrangement, using camellias.
 - (c) Coffee table arrangement, using camellias.
 - (d) Camellia corsage, morning and evening.

(Note: All classes in No. 3 above may include other materials or accessories.)

A special section will be set aside for exhibits by men.

The public is invited to make entries in classes 1, 2 and 3.

4. Club Exhibits: Arrangement using camellias.

(This special class is planned for a Garden Club exhibit. Choose one member from the club to make the arrangement.)

5. Arboretum Unit Exhibits: Arrangement using camellias.

(This class is planned especially for Arboretum Unit exhibits. Choose one member from your club to make the arrangement.)

Camellias used in arrangements need not be grown by exhibitors or members. Entrance room in the greenhouse will be used for display of arrangements.

6. Commercial Exhibits:

(a) Camellia specimen blooms.

(b) Camellia plants in pots.

First, second and third Ribbon Awards will be made to all entries judged meritorious. Cut flowers to be sent to army and navy hospitals after the show.

Entries will be received as follows:

University of Washington Arboretum, Saturday, April 14, 8:00 to 10:00 a. m., and

Arboretum Foundation office, 1117 Second Avenue, Medical Arts Bldg., Saturday, April 14, 8:00 to 10:00 a. m.

Additional schedules may be secured at the office listed above.

Mark the above dates on your calendar now so you can plan to exhibit as well as enjoy these events. Because the camellia, like the rose, seems to be a man's favorite, we especially welcome men to exhibit their blooms. There is no fee for entries or for any of the events.

GLAD REUSCH.

Arboretum Membership

THIS fiscal year's membership drive (June, 1944-May 31, 1945) is proving to be an outstanding success. There is a clear indication that the numerical strength of the Foundation as well as its financial structure will be substantially enhanced to the point where its influence will be of great value in the promotion of the Arboretum. While the results of the membership drive are not yet complete it can be said at this early date that memberships and revenue have been increased $33\frac{1}{3}$ per cent.

Of particular importance in this drive is the enthusiastic participation of garden clubs in the membership contest. Already we have clubs listed with a 100 per cent Arboretum membership which will place them on the Foundation Membership *Roll of Honor*, when awards are made after the closing date of April 30. Garden Clubs will be permanently listed on the *Roll of Honor* as long as each member retains his Arboretum membership.

A number of new units have been formed and other groups have indicated their interest to be enrolled on our unit list.

Several large memberships of \$50, \$75 and \$100 have been received from business firms and individuals. A substantial proportion of the membership revenue was secured by members increasing their dues to a higher bracket.

These results should be a definite "go ahead" signal for each and every Arboretum member if he has not already done so, to enter actively and enthusiastically into the drive. The campaign outline is as follows:

1. Garden Club contest.
2. Units.
3. Civic organizations.
4. Horticultural organizations.
5. \$100.00 memberships.
6. Business firms.
7. Increased memberships.

The membership committee appreciates the spirit of cooperation shown by Arboretum members and friends and asks for their continued effort to bring the drive to a successful conclusion.

MRS. WALTER J. SCHIBIG,
Membership Chairman.



4

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New Memberships

We take pleasure in welcoming those who have recently joined the Arboretum Foundation.

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 William H. Judd, Arnold Arboretum, Boston, Mass.
 John C. Wister, Swarthmore College, Pa.
 Donald Wyman, Arnold Arboretum, Boston, Mass.

It is our special pleasure to welcome four new Arboretum Units. Mrs. Neil MacNeil was instrumental in organizing three in the West Seattle Garden Club, they are: Unit No. 19, Mrs. F. G. Raines and Mrs. H. Coleman, co-chairmen. Unit No. 24, Mrs. Clarence Curtis, chairman. Unit No. 25, Mrs. Kenneth Mead, chairman. Unit No. 26 was formed in the Seattle Garden Club with Mrs. J. Swift Baker as chairman.

MRS. WALTER J. SCHIBIG,
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The Arboretum Bulletin

VOL. VIII, No. 1 SEATTLE, WASHINGTON MAR., 1945

Editor JOHN H. HANLEY

ARBORETUM FOUNDATION OFFICE HOURS

9 a.m. to 12 m., Monday through Friday
Phone SEneca 0920

Special Notice

To keep memberships in the Arboretum Foundation in good standing, dues should be paid during the month payable. Memberships more than three months in arrears will be dropped and the BULLETIN will be discontinued.

Arboretum Membership Blank

☐ Active	\$ 5.00
* ☐ Contributing	10.00
☐ Supporting	25.00
☐ Sustaining	50.00
☐ Sponsor	100.00
☐ Life	500.00
☐ Endowment	1,000.00

The Arboretum Foundation,
516 Medical Arts Building
Seattle 1, Washington

I hereby apply for membership in the Arboretum Foundation and remittance for same is enclosed to cover dues for the next succeeding 12 months.

Name

Address

All memberships are non-assessable.

*Garden Clubs—Affiliated membership \$10.00 minimum.
Special rate privileges to members of Affiliated Garden Clubs and Arboretum Units.

The schedule listed above has the following exceptions:

a. That members of Garden Clubs, affiliated with the Arboretum and having membership of not less than \$10.00, shall be entitled to a \$2.00 or Associate membership.

b. That members of Arboretum Units shall be entitled to a \$2.00 or Associate minimum membership.

c. This schedule applies only to new memberships.

Another Milestone

ANOTHER important chapter in the development of the Arboretum is about to begin. By virtue of much work on the part of the Arboretum Foundation generally, and on the part of a few of its members particularly, it appears that we will enjoy a substantial increase in our state appropriation for the ensuing 1945-47 biennium. At this writing there is no absolute assurance that our whole request will be granted, but the outlook is bright, what with the joint appropriations committees having reported favorably on the full amount. By the time you read these words you will know whether the subsequent actions of the house, the senate, and the governor have also favored us, and to what extent. In any event, we feel positive that the final decision on the appropriation request will be very favorable and will provide us with enough money so that more rapid strides can be made in developing our tract.

It is almost impossible to put into words our appreciation of what the Arboretum Foundation has accomplished on behalf of the Arboretum. We feel sure that, without the active aid and guidance of such an organization, the Arboretum would still be clothed in obscurity, tucked away in some far corner, fed on a diet of bread and water, and actually withering away for want of its rightful chance to grow. The fact that it is to be granted a fair opportunity is a tribute to all the members of the Foundation—the units, the garden clubs, the individuals—and to the intelligence and foresight of the members of the present administration in Olympia. One must regard the success of our plea for additional funds as another milestone on the pathway which leads toward the culmination of the plans for a truly great Arboretum.

It is the hope of everyone close to the Arboretum that many of you will visit it as our guests during the next few months. The period from late March to mid-June should bring an abundance of color. Right now we have six extra men who have been put to work in Rhododendron Glen and along Azalea Way, readying these sections for the showy season just ahead.

Even the month of March will bring a considerable amount of color. For example, in the Tenny collection of rhododendrons the flower buds on *R. sutchuenense* are swelling fast and should burst forth with the first week of warm weather. Last year the three large, beautifully-shaped plants of this species flowered a bit earlier, in February, but the bloom was very sparse. This year they are covered with an abundance of the big, fat buds which should be fully opened about the middle of March. Look for them from the upper trail through the Tenny planting in the Glen.

There will be other species in bloom about the same time, too. *Rhododendron lutescens*, down the trail about one hundred feet, will be lovely. The first few flowers have already expanded but the cool night temperatures are retarding the remainder enough so that they should hold nicely into late March.

Below the lookout will soon appear one of the finest of the early azaleas, *R. reticulatum*. Both *R. mucronulatum* and *R. dauricum* have already shown color and, because of their extreme earliness they must be considered excellent for warm situations. But *R. reticulatum*, coming two to four weeks later, needs no special care in selecting a proper site. It blooms early, to be sure, but it is also late enough so that the danger of frost damage to the flowers has passed. The color is magnificent, a little on the pink-purple side, but intense and penetrating. Perhaps it is fortunate that not many other shrubs are in flower at the same time for one must recognize that the color, though striking, is also one for which it is difficult to provide harmony.

As March passes into April, and April into May, the tempo of the developing symphony in color accelerates. The individual species, beautiful in themselves of course, are nonetheless repressed to become but single units of the composition. In the Glen, *Rhododendron Fargesii* complements the mass of *R. rubiginosum* on the one hand, and the delicately-colored groups of *R. ciliatum* on the other. *R. Augustinii*, *R. hippophaeoides*, *R. chryseum*, *R. Fortunei* and *R. decorum* add their tones as the crescendo reaches its height in early May. Following these there is a slowing down,

a softening, though *R. discolor* and its variants strive diligently to maintain the pace.

Fortunately, as the delights of the Glen fade, the color along Azalea Way is rising. The *R. molle* hybrids, *R. altaclarensis*, *R. Kaempferi* and its bright varieties, followed by the Ghent azaleas, and those which are derived from *R. occidentale*, give a sequence that, in an ordinary season, carries well into June.

Again we express the hope that all of you who are interested in the work of the Arboretum will partake of these beautiful plants and scenes, particularly during April and May. From the above remarks it should be apparent that the extended periods of bloom bring about continually changing pictures. To appreciate the whole composition one must really follow through with several visits during the season. The latch-string is always out—come often and stay long.

* * *

Among Our Contributors

We are always pleased when Else M. Frye presents material for publication in THE BULLETIN. We feel that only a few authors are capable of producing the caliber of interesting, thought-provoking, and authoritative information which seems to spring so easily and readily from her pen. Furthermore, because of natural tendencies among all who handle plants, there is need for much clarification along the lines of her short article titled "Old Mistakes."

*

Too infrequently there is afforded us the opportunity of giving our readers a new author, a new name, a new subject, or a new, refreshing approach to an old subject. That is all the more reason why we derive such pleasure from doing so and especially is this true when the new name represents an individual who can be looked up to as a true, final authority in his field. Such a person is Dr. John Thomas Howell, outstanding botanist of the California Academy of Sciences. In addition to his recognized ability as a scientist, Dr. Howell has a rare gift of painting plant pictures in most intriguing words and phrases. You will delight in his descriptions of the

beautiful species of the western mountains and in his novel approach to his subject "Coals to Newcastle."

Mr. Herbert G. Ihrig has made for himself a most enviable reputation as one of the Northwest's top authorities on rhododendrons and their culture. But those who know him well are aware of his abilities, his enthusiasm, and his keen thinking on a wide variety of garden subjects. Sometime ago, Mr. Ihrig delivered a paper entitled "The Arboretum and the Post-War Garden" before a meeting of the Seattle Garden Club. The thoughts expressed by him were enthusiastically received and it has been repeatedly recommended that THE BULLETIN should give its readers the benefit of the author's thoughts by publishing the full dissertation. We are most happy to be able to do so at this time.

In March, 1944, we carried the first in a series of articles on the hellebores by Ingeborg Nevill of Poulsbo, Washington. Although the press of work at the Nevill Primrose Farm has been near to overwhelming, and although we recognized the element of imposition in our request to Mrs. Nevill for another contribution to her series, we are certainly overjoyed with the fact that she has taken the time to give to our readers the benefits of her active experience with the genus. Information such as that which is contained in her "More About Hellebores" is just what all Northwest gardeners want and need.

Perhaps it is true that a pleasing personality goes hand in hand with working with plants. We can certainly point with pride to one of the Northwest's best botanist-gardeners as proof positive for the statement. All of us who know Frances Kinne Roberson recognize in her the culmination of personable character, bright intelligence, no end of energy, and a well-rounded knowledge of plants—a knowledge which arises from the application of all her personal abilities to the actual, intimate handling of plants in the greenhouse and in the field. The additional faculty of expressing herself nicely on paper is evidenced

by the way she has written on "Daphne Cneorum."

An event of unusual interest has been scheduled for April 14-15 at the Arboretum. The Mary E. Williams Memorial Planting of camellias has just been completed in the Theaceae section at the upper end of Rhododendron Glen. The dedication ceremony is scheduled for April 15. The committee in charge, headed by Mrs. L. Houston Reusch and Mrs. George Henderson, has also arranged for a camellia show and exhibit, the first of an annual series. The caliber of the committee and its members is adequate assurance of the success of the venture. We suggest that you acquaint yourselves with the nature of the event and that you plan now to participate actively in whatever way you can.

If you want reliable information on the garden performance of the many types of bulbs which can be grown in the Northwest we suggest that you do as we have often done—ask Mary Brown Stewart of Bow, Washington. Mrs. Stewart has accumulated an amazing wealth of knowledge of bulbous plants and her generosity in making it available to all gardeners is truly commendable. While working with her bulbs under actual garden conditions she has also developed a rich experience with companion plants. We predict a most interesting time for you as you read about her "Puget Sound Winter Garden."

When your Arboretum has become a matured, seasoned institution there will undoubtedly be a call for the publication of its early history and development. In that discourse the name "Thorgrimson" will stand out for both Mr. and Mrs. O. B. Thorgrimson have contributed so extensively of their time and thought and energy that it cannot be otherwise. Arboretum enthusiasts seem to come and go; only a relatively few are on hand, and ready to serve, day in and day out, year in and year out. Such steadfastness must be born of many things. It must reside deeply within the core and heart of a being. It must emanate from a wisdom achieved through

time and experience. It must arise from an ability to see a little distance into the future, basing the foresight upon the experiences of the past.

Mr. and Mrs. Thorgrimson are ardent gardeners. They know what can be done here in the beautiful Northwest from the fact of doing it themselves.

Camellias have been their concern for many years. They have achieved distinct success with them and it is a true pleasure to be able to publish a thorough-going article entitled "Camellias" by one member of the duo—Myrtle R. Thorgrimson.

The American Rock Garden Society has a very active group represented in its Seattle unit. Regular meetings and interesting discussions of many and diverse rockery species by people who grow them, keep the membership on its toes.

Sometime ago Ruth N. Wheelon presented before the group a paper on the species of the *Diapensiaceae*. It was so complete, so excellent, that we asked the author to make whatever alterations she deemed necessary in preparing it for publication in THE BULLETIN. The result is the fine discussion titled "Shortia, Schizocodon, et al."

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Native Flora of the Pacific Northwest

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Shortia, Schizocodon, et al.

RUTH N. WHEELON

IT IS with a definite feeling of trepidation the author submits the following information on those interesting plant genera which, along with the *Shortia* and *Schizocodon*, comprise the plant family *Diapensiaceae*. Though we have grown some of these beautiful types, and have tried without much success to grow most of the others, the material submitted herewith must be recognized for what it is, namely, a compilation and summary of all the published accounts relating to the garden use of the various genera, plus a bit of additional seasoning which has come through our own experience with them.

Several of the members of the *Diapensiaceae* are very well known in the Puget Sound country because of their perfect acclimatization coupled with their inherent charm. If these notes serve to inspire gardeners to a greater use of the various species involved in the discussion, I will feel that its purpose has been achieved.

The family *Diapensiaceae* is made up of six genera and about ten species, circumpolar in distribution and extending southward in the United States to Georgia and in Asia to the Himalaya Mountains. Most of the members of the family are woodlanders preferring one-half shade and a cool, acid soil friable enough so that the fingers can easily be forced through it. They are beautiful as ground covers among rhododendrons and for any choice, shaded place in the rock garden. On the whole the members of the family can be described as small evergreen shrublets, trailing shrubs, or stemless perennial herbs, the lower part more or less woody.

The family is a relic one which was once quite extensive but which now is apparently on its way to extinction. The six genera of which it is composed are: *Pyxidanthera*, *Diapensia*, *Shortia*, *Schizocodon*, *Galax*, and *Berneuxia* (the last named has a single species in Tibet, but is not in cultivation).

Four or more genera are in cultivation in America in rock gardens and similar places. The principal distinguishing difference among

them lies in the shape of the leaves, as follows:

Pyxidanthera barbulata (Pixie, Flowering Moss or Pine Barren Beauty of S. New Jersey) has subulate (awl-shaped) leaves, tapering from a broadish or thickish base to a sharp point.

Shortia and *Schizocodon* (N. Carolina and Japan respectively) have orbicular leaves, circular in outline or nearly so.

Galax aphylla (N. Carolina) has reniform (kidney-shaped) leaves, rounder and broader than long.

Pyxidanthera

Pyxidanthera is a small, evergreen, prostrate, tufted shrub with ascending, often very leafy branches; small, narrow, alternate, overlapping leaves and numerous white or pinkish, stemless flowers, solitary at the ends of the branches. The persistent corolla is short and bell-shaped, with five lobes or parts.

Pyxidanthera has an interesting interwoven growth which forms cushion-like masses in the sandy pine lands extending from New Jersey to North Carolina. L. H. Bailey writes: "When it flowers in late March through early May its white, starry blossoms dot the light green, or brownish green, leaf and stem cushions."

It grows best in moist, sandy soil in full sunlight and sometimes on gravel slopes of slight inclination. When growing amongst fallen leaves, its stems become longer and the whole plant more open in character. It is rarely cultivated, although adapted to rock gardens in sandy or gravelly pockets. It is very difficult, however, to transplant, as we shall learn in a moment. It is hardy in Zone VI.

I recall having read a very interesting article in the Rock Garden Society Bulletin of May-June, 1943, by Elizabeth C. White who writes thus of her experiences with "Plants of the New Jersey Pine Barrens," describing the soil and cultural requirements of these difficult subjects:

"Perhaps the most lovable of all the Pine

Barren plants is the Pixie (*Pyxidanthera barbulata*), frequently called Pixie Moss or Flowering Moss. It is really a woody shrub with evergreen leaves and, unless struggling in the shade of larger shrubs, it grows no more than half an inch high. Its prostrate branches spread out on the surface of the ground. When young, the plants are green stars flat on the earth with five or more slender branches one to two inches long. As the plant grows older it forms a mat, for all the world like a patch of starry moss, neatly fringed with the out-reaching little branches. Under favorable conditions these mats reach a diameter of two feet or more.

"Early in the spring each green star of the mossy surface develops in its center a pearly pink bud. These open into flat, five-petaled, white flowers a fourth of an inch in diameter, each just touching its neighbor. The flowers in the center of the mat open first and the buds grade down to tiny, pink pearls near the tips of the little trailers. When in full bloom and viewed from a distance, Pixie looks like a dropped white handkerchief.

"The most noticeable variation in individual Pixie plants is their winter color. A few remain really green, but the majority turn a rich maroon or dubonnet. One winter I found a Pixie mat, perhaps ten inches in diameter, one half of which was bright green and the other a rich, dark red; evidently two seedlings growing close together—a lovely specimen for my garden. I dug it with a spade's depth of earth and moved it a half mile to similar soil where it promptly died, as has every fine specimen of Pixie I have tried to move. It looks so easy to move such a flat bit of 'moss.'

"Some years ago . . . I tried propagating Pixie. Bits less than an inch in diameter were set in pots filled with a peat and sand mixture." When well established, Miss White turned them out and discovered the reason why the clumps of wild plants could not be moved successfully. "The roots were matted at the surface of the pot and were as fine as a spider's web. They would be practically invisible unless thus matted, and easily broken by disturbance of the extremely sandy soil in which they grow. While *Pyxidanthera* is usu-

ally found where there is considerable moisture in the spring, and after rains, it endures prolonged drought well, growing in what looks like almost pure sand, so that these spider-web roots must reach to a considerable depth in comparison to the height of the plant."

Describing the soil and country where this plant is found is also most interesting. Apparently the land is composed of gently rolling dunes. The basic soil is water-worn white quartz, varying in size from microscopic bits to those the size of one's fist, and other rocks that look like peanut brittle. Acid peat, formed over the ages from the vegetation, has filled some of the deeper hollows to a depth of ten feet or more, grading out to bald, white sand areas on the knolls.

The leachings from this disintegrating vegetable matter have dissolved the iron from the soil immediately below and it has been re-deposited from one and one-half to two or three feet below the original surface of the mineral earth. All through the Barrens the lower land where peat has formed to a depth of six inches or more is underlaid with a watertight layer of iron stone, cementing together the sand and pebbles, making bottoms for the shallow bowls or depressions in which are cultivated cranberries and blueberries. These depressions remain perpetually moist and become partially filled with acid, spongy peat.

Diapensia

The members of the next genus, *Diapensia*, are very small, compact, tufted, evergreen, more or less woody perennials, with small, narrow, spatula-shaped leaves and solitary, bell-shaped, five-lobed flowers. There are four species in North America, North Europe and Asia, two of which are found in cultivation.

1. *D. lapponica* was the first plant of the family to be found and named by Linnaeus in 1801, after its discovery in Lapland. It is also found on the summits of the Adirondacks and on the mountains of New England, Quebec, and Laborador, as well as in Arctic America and northern alpine Europe and Asia. It is hardy in Zone I and will be found an interesting plant adapted to the alpine rock garden. The dense cushion-like tufts, one to three inches high, are studded with white flowers on

stout one to two-inch stems. The leaves are about $\frac{1}{4}$ -inch long, crowded below, thick, spatula-shaped and blunt or round at the end with entire margins. The flowers are $\frac{3}{4}$ to one inch across and appear in June and July.

2. *D. himalaica*, from northern India, is densely tufted, with leaves somewhat sharp-pointed and very short; the flowers are white or rose-red.

3. *D. obovata* var. *asiatica* is found listed in one catalog. It is found in Japan, and is similar to *D. lapponica*, but with broader leaves.

Galax

The next three members of the *Diapensiaceae* have much in common and at casual glance, when not in flower, the differences are not particularly noticeable. Since there is an interesting story about one of the group, I shall rearrange the order somewhat and leave that one until last.

Early in May, the leaves of *Galax aphylla* (Galaxy or Colt's Foot) are an exquisite yellow-green, in June, more solidly green, and later in the season, when the seed pods are dried and dingy, they turn rosy pink or show rich tones of wine. If they are shaded, however, they remain green.

G. aphylla is a beautiful ground cover, especially adapted to use with Rhododendrons since it likes the same soils and situations, delighting in shade and in a cool, moist, peaty loam. A northern exposure is recommended. It is propagated by division. The flowers appear from May to July.

Schizocodon

Schizocodon comes from Greek words which mean *cut* and *bell*, referring to the fringed corolla.

The members of the genus are glabrous perennial herbs, with the leaves all apparently coming from the root and borne on rather long leaf-stalks, developing an egg-shaped and rounded outline. The flowers, few in number at the top of a scape, are nodding and funnel-shaped with five-lobes or petals, which latter are fringed and overlapping, appearing as if cut straight across the top. It should be planted in a mixture of sand and leaf mold in partial shade in the ericaceous bed.

The best known species is *S. soldanelloides* (Fringe Bells), the Rock-Mirror of Japan, a pretty alpine plant with rosy flowers, fringed like the well-known *Soldanellas* of the Alps. The leaves, however, are very different, those of *Schizocodon* being coarsely toothed and the flowers having five stamens instead of four. *Soldanella* belongs to the primrose family and its leaves are finer textured and lighter green in color.

The corolla of the *Schizocodon* flower is deep rose in the center, fading into blush or white at the edges. The plant itself is only a few inches high, the flowers being borne on a four to six-inch scape and numbering four to six. Numerous scapes appear each April. The leathery, evergreen leaves take on the more or less bronze tone of *Galax* in the autumn, but the form is not so pleasing. They are more or less wedge shaped or roundish at the base.

S. ilicifolius has small, glossy, holly-like leaves and pink or white bell-shaped flowers which are produced in May.

S. alpina is a dwarf, compact May-bloomer, a high alpine type with drooping, pink bells.

Shortia

Lastly we come to *Shortia*, founded by Torrey and Gray in 1842. *Shortia*, like most plants thought of as rare, grows abundantly in the few places where it is found and can be grown successfully in humus and leaf-mold. This should be constantly supplied unless a natural condition of this kind exists. A mulch of pulverized sphagnum once a year is suggested. It is a shade loving plant and belongs in the ericaceous bed or in a shaded spot in the rock garden. *Shortia* has not been cultivated generally, but is becoming much more popular and many worthy varieties may be brought out in the future. In England, *Shortia* is often grown as a pot plant and is better known there than in America.

Shortias are attractive, evergreen, stemless herbs with creeping root-stocks. They form carpets of leathery, oval to almost round, heart-shaped leaves with bell-shaped, nodding flowers, which are borne solitary, on slender, leafless scapes. There are two species and several forms, which in appearance resemble *Galax*.

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Shortia uniflora, the Japanese Rock-fan, has hard, glossy leaves which take on good color in autumn. Its large, soft-pink flowers appear in April. The leaves are wavy and toothed, while those of *S. galacifolia* are only wavy-margined and toothed. They are also heart shaped, broader than long. *Shortia* plants are much easier to grow than *Schizocodon*.

S. uniflora grandiflora has leathery, oval leaves, which become shining and crimson in winter; it is a much larger form than the species even to the pink, crimped-edged flowers which may become 1½ inches in diameter. The flowers are very freely produced in early spring during March and April.

S. uniflora grandiflora alba is a white variant of the above. There is also an unnamed, diminutive form about one half the size of the type.

S. galacifolia, while not as showy as the former species, is a most delightful little plant which has been divided many times in the years since we acquired it, and until recently, has had no special treatment other than a shaded, well-drained position on a slight incline. For the first two years it was exposed to the weather in winter but practically hidden in summer by the foliage of the common hosta or plantain lily. We have since brought it out into the open and have worked lots of peat into our sandy soil. Both of our *Shortia* species have set seed and the seed pods are very attractive, especially on *S. uniflora grandiflora*. According to Carl English, Jr., of Seattle, it is difficult to procure seed of *Shortia* since the flowering stem usually dies down before the seed matures.

We have selected a special spot in our garden for growing *Shortia*, *Schizocodon*, *Soldanella*, *Synthyris*, *Rhodohypoxis*, a few dwarf rhododendrons, *Mertensia virginica* (which seems to have disappeared since flowering), *Juliae* Primrose, hepaticas, *Epigaea repens*, and, under a large white azalea which grows alongside and at one end of the pool, *Erythronium*, *Vancouveria hexandra* and more *P. Juliae*. It should work out very well since it is the original location where our *S. galacifolia* has thrived. The picture was entirely

charming when in flower last spring, with all of the pinkish mauve, pink and rose, blue and white fairy-like flowers against the background of shining leaves of the *Shortia* and *Schizocodon*.

Our specimen of *S. galacifolia* shows thin, smooth, very shiny leaves, which turn a lovely copper, maroon, or even bright rosy-red in the fall. Such leaves come from the base on long stalks and are orbicular, or almost egg-shaped in outline. The ends are bluntly rounded and the whole blade is wavy margined and toothed. The flowers are dainty, white, nodding bells, one inch across and solitary on scapes three to six inches high.

Of all the family (*Diapensiaceae*), *Shortia galacifolia* is historically the most interesting species. The story of the search for it is a fascinating one and one which I believe all gardeners will enjoy reading.

The following is a shortened version of that story, as taken from an article by Charles F. Jenkins, Hemlock Arboretum, Mt. Airy, Philadelphia, Pa., entitled "Asa Gray and His Quest for *Shortia Galacifolia*."*

"Asa Gray sailed for Europe on November 9, 1838. The main object of this trip was to examine the original sources of American flora to be found in the principal herbaria of Europe, collected by a long list of botanists and travelers.

"Among these was Andre Michaux (1746-1802) who had spent eleven years in the U. S., sending home to France great quantities of botanical treasures. Among these was an unidentified specimen, faded and incomplete, labelled 'High Mts. of Carolina.' In his journal, Michaux gives careful directions for finding the plant, but for some reason those who studied them misunderstood their application and thought they meant some other plant, so *Shortia* was doomed to a long, long search.

"The following excerpt, from Michaux's Journal, as translated by Professor Edith Phillips of Swarthmore College, will give some idea of the hardships borne by the botanist on his trip to the *Shortia* country.

"The roads became more difficult as we

*The original article appeared in *Arnoldia*, April 10, 1942.

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approached the headwaters of the Keowee on the 8th of December, 1788. Two miles before arriving there I recognized the *Magnolia montana* which has been named *M. cordata* or *auriculata* by Bartram. We stopped there to camp and I ran off to make some investigations. I gathered a new, low, woody plant with saw-toothed leaves creeping on the mountain at a short distance from the river. The junction of two other rivers or large torrents unite at this place but it is known only as the forks of the Keowee.

"On December 11, it froze hard and the air was clear and keen. I noticed a chain of high mountains which extended from west to east and where the frost was little felt in places exposed to the sun. . . . We crossed a space about three miles in the midst of *Rhododendron maximum*. I came back to camp with my guide at the head of the Keowee and gathered a large quantity of the low, woody plants with the saw-toothed leaves that I found the day I arrived. I did not see it on any other mountain. The Indians told me the leaves had a good taste when chewed and the odor was agreeable when they are crushed, which I found to be the case.

"The head of the Keowee is the junction of two torrents of considerable size which flow in cascades from the high mountains. The junction takes place in a small plain where there was once a Cherokee village. On descending from the junction of these two torrents, with the river to one's left and the mountains which face north on the right, one finds, at about 200 to 300 feet from the junction, a path formed by the Indian hunters. (NOTE: The path still exists very much in the same condition, probably, as Michaux found it 100 years ago). It leads to a brook where one recognizes the site of an Indian village by the peach trees which still exist in the midst of the underbrush. Continuing on this path, one soon reaches the mountains and one finds this plant which covers the ground along with the *Epigaea repens*."

"In his Journal for April 8, 1939, Asa Gray records the find in the herbarium of the Paris Museum. For forty years, the greater part of his productive life, the memory of a fragmen-

tary, dried, incomplete specimen in a neglected herbarium cabinet in France, haunted him. A shy, evergreen, ground cover with dainty, creamy-white flowers in early spring; cheerful, shiny, bright green leaves in summer; a winter coloring rich and rare—it well deserved his life-long devotion.

"Gray, in that journal of 1839, writes further: 'I have discovered a new genus in Michaux's herbarium. . . . It is from that unknown region, the high mountains of North Carolina. We have the fruit . . . but no flowers. . . . It is allied to *Galax*, but is a very distinct genus. . . . I claim the right of a discovered to affix the name. So I say, as this is a good North American genus and comes from near Kentucky, it shall be christened *Shortia*, to which we stand as godfathers. So *Shortia galacifolia*, Torrey & Gray, it shall be.'

"Later, in November, 1839, Gray consulted Michaux's Journal again, but missed the significance of his directions again. He headed for the high mountains with two friends on his first quest for *Shortia* in late June, 1841. None of the party knew that *Shortia* flowers in late March or early April, nor did they know at what altitude it grew. They were unsuccessful in the search and were very disappointed, since they were anxious to obtain flowering specimens in order that they might complete its history.

"Again in 1843, Gray and a friend visited the same general territory, the happy hunting ground of many distinguished botanists, both before and since. But again, he was searching in the wrong place and again was disappointed.

"In May, 1877, George Hyams (1861-1932), a 16-year-old boy of Statesville, N. C., found *Shortia* growing on the banks of the Catawba River near Marion, the county seat of McDowell County, North Carolina, some seventy miles in a direct line from Michaux's discovery. His father, M. E. Hyams, an herbalist, did not recognize the plant and a year and a half later sent a specimen to a friend, Joseph Congdon, for identification. He, in turn, wrote Dr. Gray telling him that he thought he had *Shortia*.

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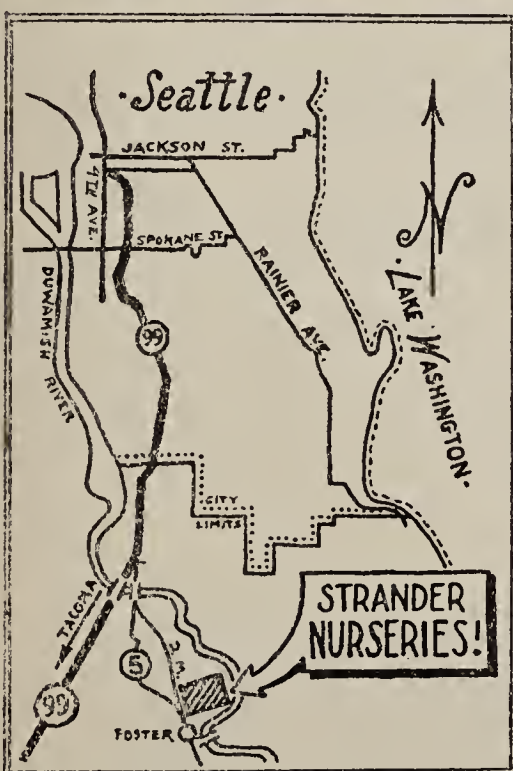


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"At last the search of nearly forty years was at an end. Gray corresponded with Hyams and in a letter written in October, 1878, Hyams tells of the finding of the plants.

"Early in the spring of 1879, Dr. Gray organized a real excursion to see *Shortia* growing in the wild. The son, George Hyams, acted as guide for the party. Quoting from an account of the trip kept by Mr. J. H. Redfield, a member of the party:

"'In the secluded and well protected station, well over-shadowed by rhododendrons and magnolias, was seen the little colony of the plant, so long sought and by so many so long doubted. Its companions were *Mitchella repens*, *Asarum virginicum* and *Galax aphylla*. The space over which the plant extended was perhaps 10 by 30 feet and in all there may have been 50 to 100 plants. As the plant multiplies by stolons it is remarkable that its area should be thus restricted and since, in the struggle for life of two allied plants the weaker must go, Dr. Gray suggested the possibility that its stronger cousin, the *Galax*, had crowded out the *Shortia*. And here indeed, in what may be the last foothold of the rarity, *Galax* appeared to be actually doing so. Yet the plants, though comparatively few, were vigorous and healthy. Other stations may be looked for; but they must be hard to find.'

"Dr. Sargent, a member of Gray's party, not satisfied with the meager results of the search, again visited the Carolinas in 1886, hunting for *Magnolia cordata*, mentioned by Michaux. One evening, after a botanizing trip, Dr. Sargent produced a leaf and asked what it was. One of the party said it looked like *Shortia* and so it turned out to be. They searched until they found the plant again and sent a living specimen to Dr. Gray. The plants were found at Bear Camp, a small settlement on Bear Camp Creek, a little stream flowing into the Horse Pasture River, which in turn enters the Keowee.

"Frank E. Boynton, a member of Sargent's party, made a trip in 1889 to the headwaters of the Keowee. He gives complete directions for locating the *Shortia* in his account of the journey, thus:

"'We camped the first night at the White Water Falls, which alone are worth a considerable journey to see. The Jocassee Valley, our destination, is at the mouth of White Water Creek or rather at the Junction of White Water and Devil Fork. I wished to see if *Shortia* was growing as high up in the mountains as these falls, which were at least 1,000 feet above Jocassee. No *Shortia* was found, however, until we reached the valley, which has an altitude of about 1,200 feet and here it grows by the acre. Every little brooklet is lined with it. Most of these little water courses are in deep narrow gorges where the sun hardly penetrates, except during the middle of the day. All these steep banks are literally covered with *Shortia*. What is comforting to the botanist is that it can hardly be

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exterminated. It is on land too steep to be cultivated and there is such an abundance that no amount of collecting can ever effect it strenuously. Our party took away bushels of it and no one could tell that a plant had been disturbed, so thickly is it growing. No idea of the beauty of this plant can be formed until it has been seen in its native home. The mass of glossy green and white, once seen, can never be forgotten.

“ ‘The home of *Shortia* is a strange mixture of North and South. As a rule it grows under the shade of rhododendrons and tall *Ralmias*. Hemlock and white pine of splendid dimensions are very common. To see *Shortia* in blossom and in its glory one must get there about the 20th of March, not later than the 25th.’

Growing Shortia in the North

“*Shortia* plants may be obtained from a number of nurserymen and collectors who specialize in the flora of the Carolina mountains. An authority writing for Bailey’s Encyclopedia of Horticulture, says that it fails to set seed as the stem withers before the seed matures. Apparently no plants are propagated in this way. It would be well for botanists and growers to note whether this condition generally prevails. *Shortia* was grown successfully in the Arnold Arboretum without special care for twenty-five years (it has recently disappeared, however, but is now being reestablished) and may be found in the many wild gardens throughout the country. It is hardy up to the White Mountains of New Hampshire where the thermometer goes forty degrees below zero. It has been successfully

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grown for fifteen years on the estate of F. Cleveland Morgan some twenty miles northwest of Montreal, Canada, and has been reported as cultivated at Grand Metis, on the Gaspé Peninsula, one hundred and fifty miles further north than Montreal. There are numerous reports of failure, however, as it often lives for a while and then pines away and disappears. These failures are probably due to the soil and location and not the climate.

"It has been growing at the Hemlock Arboretum in Philadelphia for several years. A six-inch bed of oak leaf mold was prepared, under and near a clump of hemlocks, where it gets the sun but an hour or two in the middle of the day. One clump, however, planted under a dense, low-growing dogwood, where it had no sun at all, did better than its fellows. In the autumn the oak leaves, as they fall, nestle down and cover the bed. In the spring these are removed and sieved leaf mold is scattered over the clumps and worked down under the leaves. Again in the summer a light application of peat moss is given in the same way.

"Dr. Frederick P. Lord of Hanover, N. H.,

thinks his success in growing *Shortia* is due to applications of a mixture of cottonseed meal, superphosphate and potassium sulphate, but after disastrous experiences trying to help *Epigaea repens* along, we, at the Hemlock Arboretum, have been afraid to use commercial fertilizer of any kind for ericaceous plants. Dr. Lord also waters his stands rather regularly during the summer but here again we are afraid to use the city water, with its supercharge of bacteria-destroying chemicals. Our plants could not do better if growing in their pristine mountain homes, as they have a healthy leafage and an abundance of flowers. Observations of two successful plantings show that in these *Shortia* does better on a slope than when grown on level ground. This may be due to better drainage or less direct exposure to the sun."

1 1 1

On the strength of some of the plants in Rhododendron Glen, the present season is two to three weeks late. *R. sutchuenense* bloomed in February, 1944; in 1945 it reached full flower March 14. *R. lutescens*, *R. praeevernum* and the variety *Rosa Mundi* were correspond-

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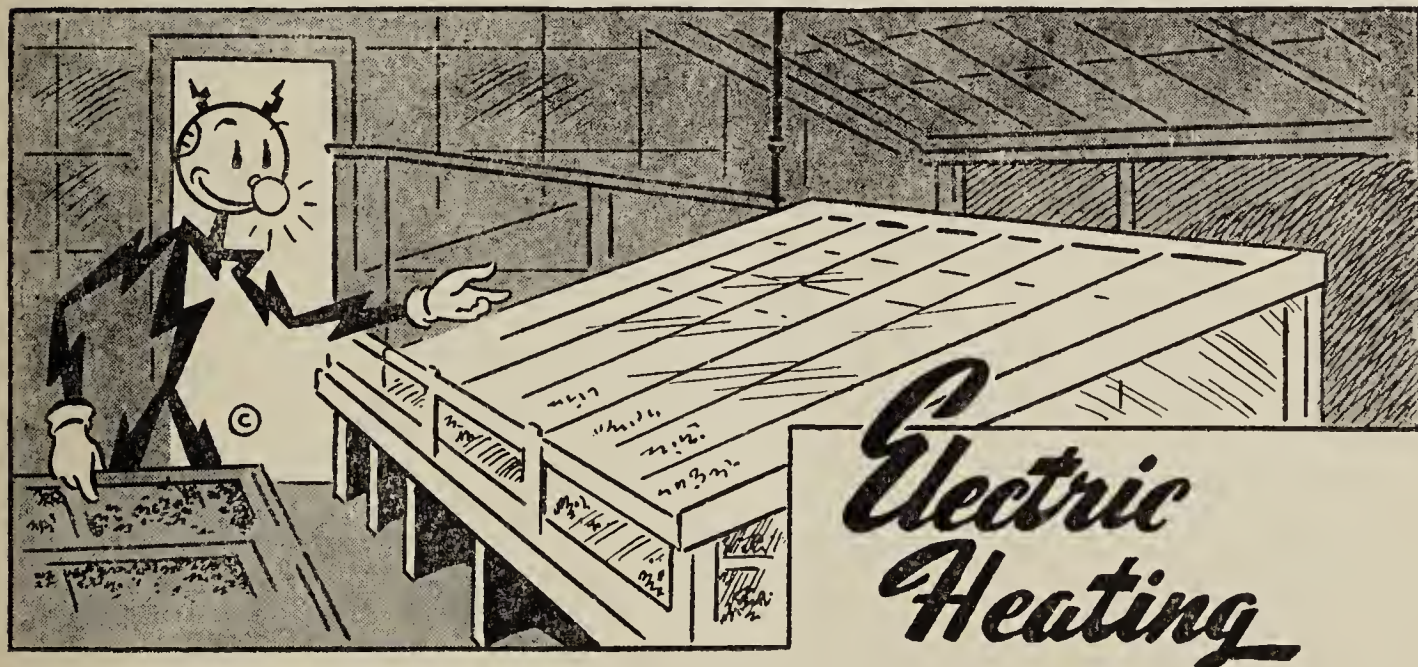
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